Amendments to the Claims

1. (Previously presented) A gas turbine engine combustor comprising:
an inboard wall;
an outboard wall; and
a forward bulkhead extending between the inboard and outboard walls and cooperating therewith to define a combustor interior volume,
wherein, in longitudinal section, a first portion of the combustor interior volume converges from fore to aft and a second portion of the combustor interior volume, aft of the first portion, converges from fore to aft more gradually than the first portion.

2. (Original) The combustor of claim 1 wherein:
said first portion represents at least 25% of the interior volume; and
said second portion represents at least 35% of the interior volume.

3. (Original) The combustor of claim 1 wherein:
said first portion represents at least 35% of the interior volume; and
said second portion represents at least 50% of the interior volume.

4. (Original) The combustor of claim 1 wherein:
said first and second portions, in combination, represent at least 80% of the interior volume.

5. (Original) The combustor of claim 1 wherein:
said first and second portions, in combination, represent at least 90% of the interior volume.

6. (Previously presented) The combustor of claim 1 wherein:
the inboard wall has a first portion and a second portion aft of the first portion and at a longitudinal interior angle to the first portion of the inboard wall of between 180° and 210°; and

the outboard wall has a first portion and a second portion aft of the first portion and at a longitudinal interior angle to the first portion of the outboard wall of between 180° and 210°.

7. (Original) The combustor of claim 1 wherein the inboard and outboard walls each have an exterior shell and an interior multi-panel heat shield.

8. (Previously presented) A gas turbine engine combustor comprising:

an inboard wall;

an outboard wall; and

a forward bulkhead extending the inboard and outboard walls and cooperating therewith to define a combustor interior volume,

wherein, at least one of the inboard wall and the outboard wall has a first portion and a second portion aft of the first portion, the second portion at a longitudinal interior angle to the first portion of between 185° and 210°.

9. (Previously presented) The combustor of claim 8 wherein the other of the inboard wall and the outboard wall has a first portion and a second portion aft of the first portion of said other, the second portion of said other at a longitudinal interior angle to the first portion of said other of between 185° and 205°.

10. (Original) The combustor of claim 8 wherein in longitudinal section the inboard and outboard walls consist essentially of a plurality of straight sections.

11. (Previously presented) A method for engineering a gas turbine engine combustor having an inboard wall, an outboard wall, and a forward bulkhead extending the inboard and outboard walls and cooperating therewith to define a combustor interior volume, wherein, in longitudinal section, a first portion of the combustor interior volume converges from fore to aft and a second portion of the combustor interior volume, aft of the first portion, converges from fore to aft more gradually than the first portion, the method comprising:

selecting a degree of convergence of the first portion so as to provide a desired low first portion residence time; and

selecting a degree of convergence of the second portion in combination with selecting introduction parameters for process air so as to provide a desired low generation of NO_X.

12. (Original) The method of claim 11 wherein the selection of said degrees of convergence and parameters of introduction for process air are varied to provide a desired short quench zone.

13. (Original) The method of claim 11 wherein the engineering serves to reduce said generation of NO_X relative to a baseline combustor being reengineered or replaced.

14. (New) The method of claim 11 wherein the combustion interior volume is annular.

15. (New) The method of claim 11 wherein the combustion interior volume surrounds an engine centerline.

16. (New) The combustor of claim 8 wherein the combustion interior volume is annular.

17. (New) The combustor of claim 8 wherein the combustion interior volume surrounds an engine centerline.

18. (New) The combustor of claim 1 wherein the combustion interior volume surrounds an engine centerline.

19. (New) A gas turbine engine combustor comprising:

an inboard wall;

an outboard wall; and

a forward bulkhead extending between the inboard and outboard walls and cooperating therewith to define an annular combustor interior volume,

wherein, in longitudinal section, a first portion of the combustor interior volume converges from fore to aft and a second portion of the combustor interior volume, aft of the first portion, converges from fore to aft more gradually than the first portion.

20. (New) The combustor of claim 19 wherein the combustion interior volume surrounds an engine centerline.